

Amendments to the Claims

Listing of the Claims

1-9. (cancelled).

10. (previously presented) A process for removing decay heat from a liquid metal reactor, comprising:

providing a liquid metal reactor comprising at least one circular vertical tube, a sodium-air heat exchanger and a sodium-sodium heat exchanger having a heated sodium collector, said sodium-sodium heat exchanger disposed within said circular vertical tube;

transferring a quantity of sodium from said sodium-air heat exchanger into said sodium-sodium heat exchanger disposed within said at least one circular vertical tube of said liquid metal reactor;

altering a density of said quantity of sodium via a heat transfer occurring between a quantity of hot sodium located outside said sodium-sodium heat exchanger and said quantity of sodium within said sodium-sodium heat exchanger;

circulating a quantity of density altered sodium through said sodium-sodium heat exchanger to return to said sodium-air heat exchanger; and

removing a quantity of decay heat from said liquid metal reactor.

11. (original) The process of claim 10, wherein altering comprises the steps of:
absorbing by said quantity of sodium a quantity of heat generated by said quantity of hot sodium;

monitoring a surface emissivity of a heat transfer tube of said sodium-sodium heat exchanger and said circular vertical tube; and

maintaining a fluidity of said quantity of density altered sodium via said heat transfer.

12. (original) The process of claim 11, wherein absorbing comprises absorbing said quantity of heat through said circular vertical tube and said heat transfer tube from said quantity of hot sodium located in a hot pool outside said circular vertical tube.

13. (original) The process of claim 11, wherein absorbing comprises absorbing said quantity of heat through said heat transfer tube from said quantity of hot sodium located in a cold pool of said circular vertical tube and in contact with said sodium-sodium heat exchanger.

14. (original) The process of claim 10, wherein transferring comprises introducing a quantity of sodium from said sodium-air heat exchanger into said sodium-sodium heat exchanger through a cold leg of a heat removing sodium loop of said sodium-sodium heat exchanger.

15. (previously presented) The process of claim 10, wherein circulating comprises the steps of:

 flowing downwardly said quantity of sodium through a cold sodium downcomer of said sodium-sodium heat exchanger;

 flowing upwardly said quantity of density altered sodium through a heat transmitting tube of said sodium-sodium heat exchanger;

 collecting said quantity of density altered sodium in said heated sodium collector of said sodium-sodium heat exchanger;

 transferring said quantity of density altered sodium from said heat sodium collector into said sodium-air heat exchanger through a hot leg of a heat-removing sodium loop of said sodium-sodium heat exchanger;

 cooling said quantity of density altered sodium in said sodium-air heat exchanger; and
 reintroducing a quantity of sodium into a cold leg of said heat-removing sodium loop.